

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): A process for preparing tert-butanol comprising contacting a homogeneous reaction mixture comprising water, tert-butanol and an isobutene-containing hydrocarbon mixture with an acidic ion-exchange resin at from 30 to 120°C, wherein the homogeneous reaction mixture prior to said contacting has a proportion of isobutene of over 10% by mass and a proportion of water which is from 30 to 80% of the amount of water which is possible based on the solubility of water in the homogenous reaction mixture.

Claim 2 (Original): The process of claim 1, wherein the proportion of water is from 50 to 80% of the amount of water which is possible based on the solubility of water in the homogenous reaction mixture.

Claim 3 (Original): The process of claim 1, wherein the proportion of water is from 60 to 80% of the amount of water which is possible based on the solubility of water in the homogenous reaction mixture.

Claim 4 (Original): The process of claim 1, wherein the proportion of water is from 70 to 80% of the amount of water which is possible based on the solubility of water in the homogenous reaction mixture.

Claim 5 (Original): The process of claim 1, wherein the isobutene-containing hydrocarbon mixture is pure isobutene.

Claim 6 (Original): The process of claim 1, wherein the isobutene-containing hydrocarbon mixture does not comprise acetylene derivatives, comprises less than 5,000 ppm of dienes and no further olefins having one or more branches on the olefinic double bond.

Claim 7 (Original): The process of claim 1, wherein a part of the tert-butanol obtained by the process is recycled to prepare the homogeneous reaction mixture.

Claim 8 (Original): The process of claim 7, wherein the tert-butanol recycled at a recirculation factor from 0.1 to 1.7.

Claim 9 (Original): The process of claim 1, wherein the contacting is carried out in a plurality of reactors connected in series.

Claim 10 (Original): The process of claim 9, wherein water is introduced between the reactors.

Claim 11 (Original): The process of Claim 9, wherein the contacting is carried out in at least four reactors.

Claim 12 (Original): The process of Claim 9, wherein the plurality of reactors connected in series have decreasing temperatures in the flow direction.

Claim 13 (Original): The process of Claim 12, wherein the contacting is carried out in at least four reactors.

Claim 14 (Original): The process of Claim 13, wherein the temperature of the first reactor is from 67 to 70°C, the temperature of the second reactor is from 53 to 56°C, the temperature of the third reactor is from 42 to 46°C, and the temperature of the fourth reactor is from 42 to 38°C.

Claim 15 (Original): The process of Claim 1, wherein the acidic ion-exchange resin comprises sulfonic acid groups.

Claim 16 (Original): The process of Claim 1, wherein the proportion of isobutene in the isobutene-containing hydrocarbon mixture is at least 30% by mass.

Claim 17 (Original): The process of Claim 1, wherein the proportion of isobutene in the isobutene-containing hydrocarbon mixture is at least 40% by mass.

Claims 18-20 (Cancelled).

Claim 21 (New): The process of Claim 1, further comprising:  
after the contacting, using the tert-butanol in a process for preparing  
methylmethacrylate.

Claim 22 (New): The process of Claim 1, further comprising:  
after the contacting, using the tert-butanol as a precursor for preparing a peroxide  
having at least one tertiary butyl group.

Claim 23 (New): The process of Claim 1, further comprising:

after the contacting, using the tert-butanol as an intermediate in the isolation of pure isobutene from an isobutene mixture.

DISCUSSION OF THE AMENDMENT

Claims 1-17 and 21-23 are active in the present application. Claims 18-20 are cancelled claims. Claims 21-23 are new claims. Support for the new claims is found in previously presented Claims 18-20 and on page 1, lines 8-15 of the specification.

The specification has been amended to include a brief description of the drawings. Support for the amendment is found on page 7, lines 10-12, page 17, line 5; and page 15, lines 21-22.

No new matter is added.